

**DLG Error Checking System (DECS+)**  
**Version 4.0**  
**Release Notes - October 9, 1998**

This release of DECS implements two major changes. A first-time port to the Sun platform and the addition of the General Cartographic Transformation Package (GCTP) for validating DLG projection information. Additional, minor changes were made to accommodate changes in the DLG Standard and to provide more complete domain checking for header values. Each of these changes are described in more detail below.

The new release can be obtained from:

<ftp://ftp.mcmc.er.usgs.gov/release/decs/ver4.0/>

These release notes are also included in text, WordPerfect, and PDF formats from the above directory.

Questions about the release should be directed to:

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Port to Sun

A SunOS 5.6 executable is available with this release for the first time. This port was requested by Jackie Burns (RMMC) to provide support for ODB testing on the Sun platform. No source code changes were required for this port except to the makefile used to build the application. Therefore, no differences should be noticed between DG and Sun platforms although the user should be aware that extensive testing has not been completed on this platform.

Projection Check

The General Cartographic Transformation Package (GCTP) C-based library version 2.0 (GCTPC) has been added for validating DLG projection information. Two occasional problems can be identified by this check.

The first problem was identified by Gary Fisher (MAC). He reported that some DLGs have been found to contain coordinates in Cartesian file units rather than ground meters. By checking the X/Y coordinates for the four corners of the DLG against the projection values returned from GCTPC this problem can now be identified. In addition, this check will verify that the UTM values associated with the geographical extent of the DLG are within the allowable resolution based on scale of the DLG.

The second problem involved DLG headers that contained incorrect datum information. DLGs were identified by an outside customer that contained NAD83 coordinate data even though the horizontal datum flag in the header indicated a NAD27 datum. The new projection check against the four XY coordinates in the header will identify this problem because the returned UTM values from GCTPC would be based on the header datum flag. If the flag indicated NAD27 the returned coordinates from GCTPC would not match the NAD83 values contained in the header.

Note: Data coordinates are not included in the above checks. The comparison of coordinates only occurs within the four corners listed in the DLG header. The actual X/Y coordinates contained in the DLG element records are not individually compared. This allows the possibility that the DLG header may still be correct (in agreement with the datum flag) even though the data itself is invalid.

### Canada/Mexico Standard Changes

At the request of Mike Young (RMMC), DECS was modified to reflect changes in the DLG Standard concerning the use of Canada (CN) and Mexico (MX) abbreviations in the cartunit state list. Previously, quads that included area in an adjoining country carried a pseudo 2-letter country code in the list of states that represented the border country. The new standards eliminate this requirement. As a result, DECS was written to flag an ERROR if CN and MX are found in the state list. The following error message was added to DECS:

ERROR: CN/MX are no longer allowed in cartunit state list.

This message will display if either of the above abbreviations exist in the DLG regardless of whether the database checks are active. In addition, the database lookups were modified to look for only US states, so that additional error messages will be displayed to show discontinuity between the database lookups and the DLG header.

### Cartunit Periods

Modifications were made so that DECS will not call an ERROR if a period is found in the cartunit. Three GNIS quad names now contain periods. The ODB would not accept a file that produced an ERROR message so the message:

ERROR: Cartunit contains a period.

is now displayed as:

WARNING: Cartunit contains a period.

### Scale Domains

The scale 1:30,000 and its corresponding resolution 0.76200 were added to the DECS domain tables to accommodate Puerto Rico DLG quads at this scale.